Expression in the Social Age: Towards an Integrated Model of Technology Acceptance, Personality, Civic Engagement and Social Capital

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Abstract. We investigate the factors that affect the use of social media for civic engagement and social capital, and examine if online civic engagement also results in offline civic engagement. Using data from 282 university students, we find significant relationships between social media use, social capital, online and offline civic engagement. This study also tests the relationship between personality traits of individuals and how these traits relate to the use of social media for civic engagement and social capital. While agreeableness and conscientiousness are strongly associated with perceived usefulness of social media use, agreeableness was found to have a negative association with perceived usefulness of social media in the context of civic engagement.

Keywords: Social media, civic engagement, social capital, technology acceptance, big five model, personality traits

1 Introduction

The use of social media presents new opportunities for citizens to express their opinions, discuss issues and initiatives of public interest, and display their commitment for a social cause [1]. Studies have shown that social media use helps mobilize social protests and movements influencing offline civic participation [1]. Social media use positively influences civic engagement through participatory behaviors, i.e., through free information exchange on news about civic matters, news and current events and interaction between users which may motivate more citizens to join a cause [2]. Prior research also suggests that online civic engagement promotes offline civic engagement [3] and it is seen as a precursor for engagement in physical communities, amongst young adults in particular [4]. Few studies on social media have noted that the discussion of community/societal issues in social media can encourage individuals to become engaged citizens [5] and this may also lead to social capital [6].

The above arguments motivate our interest in investigating the use of social media in a culturally diverse and a young developing country like India. The use of social media during the 2014 General Elections [7] provides evidence to suggest that the use of social media has been gaining momentum in the country. Focusing on the role of social media for civic engagement, we address three important gaps in the extant literature.

First, although civic and political organizations use social media, empirical research on the effects of social media use on civic engagement is limited [6]. Second, online political groups may have an ability to foster offline political participation [8]. However, further investigation on the effects of online participation on political participation and civic engagement can help researchers understand the civic and political processes [8]. Third, there are few systemic studies that examine the factors that influence the use of social media [9] and effect of social media use on civic engagement [10].

It is important for policy makers and governments to understand how social media is used for civic engagement. Uncovering the underlying motivations to use social media would help academia and researchers to understand user behavior, and the *why* and *so-what* of social media use. Some studies have focused on the effect of personality on social media use and the resulting social capital and civic engagement [6]. However, studies report that the relation between personality and social media use (being a technology) may be mediated by technology acceptance factors [11, 12]. The mediating effect of technology acceptance variables will help researchers explain the effect of social media use on civic engagement more comprehensively. We use an integrated model that studies the effect of personality traits using the Big Five model, on social media use mediated by variables of the technology acceptance model (TAM), the effects of online civic engagement on offline civic engagement and the effect of social capital on online civic engagement.

2 Prior Research and Hypotheses

In this section we present the prior literature in the areas of social media use, civic engagement, personality and technology acceptance. We also present an integrated model that builds on linking personality, technology acceptance models, social media and civic engagement.

2.1 Social Media, Social Capital and Civic Engagement

Civic engagement commonly refers to "knowledge of, interest in and discussion of public affairs, as well as participation" (Haller et al. 2011 p. 5 – [13]). Civic engagement through social media includes knowledge, interest, discussion and participation, and information gathered about public affairs through social media [13]. Civic participation leads to empowering community members, developing critical awareness and performing citizenship [14].

Past work [15] has demonstrated the positive relationship between social media use and two forms of civic engagement; offline civic engagement and online civic engagement. Hence we hypothesize:

H1: Social media use is positively associated with online civic engagement

Online communities that promote civic engagement have been found to facilitate offline civic engagement [4, 16]. In order to study this phenomenon of online civic engagement through social media leading to offline civic engagement, we hypothesize:

H2: Online civic engagement through social media is positively associated with offline civic engagement

Social capital is defined as the "resources embedded in one's social networks, resources that can be accessed or mobilized through ties in the network" (Lin, 2008, p. 51 - [17]). Research suggests that social capital can be created from online relationships and interactions [18] and is referred to as 'virtual' or online social capital. We also measured social capital in the form of online social capital. Studies have found social media use to have a positive association with social capital [19] and also an antecedent for civic participation [4]. Based on the literature above, we hypothesize:

H3: Social media use has a positive association with social capital

H4: Social capital is positively associated with online civic participation

2.2 TAM and Social Media

A few studies have used a theory-driven approach to examine the psychological antecedents of civic engagement and of online civic engagement in particular [15]. Prior studies have found that perceived usefulness is positively associated with the intention to use social media [20]. Literature suggests that PEOU's influence on technology acceptance is moderated by PU [21]. Hence, we hypothesize the following:

H5 Perceived usefulness is positively associated with social media use

H6: Perceived ease of use is positively associated with perceived usefulness

2.3 Personality and TAM

Personality can be conceptualized as an individual's behavioral, emotional, and attitudinal response patterns [22]. For measuring personality we used the "Big Five" framework as it is one of the most widely used models in academic research [22, 23] which defines five personality traits of conscientiousness, extraversion, openness, emotional stability and agreeableness [24]. Prior research has empirically examined the effect of personality on behavioral intention (of using technology) mediated by TAM variables of perceived usefulness [25, 11, 12] and ease of use [25, 11]. These studies have mostly found support for the hypotheses studying the effect of personality traits on TAM variables.

People high in extraversion are likely to be high performers in tasks requiring social interaction like civic activities [26]. Such people are also likely to act based on their perceptions of what others think about them. In the context of civic engagement, high performers are likely to use the tools like social media to present themselves as competent in front of their peers.

H7: Extraversion is positively associated with perceived usefulness of social media for civic engagement

Agreeable people are generally viewed as kind, considerate, likable or cooperative [27]. In the context of civic engagement, these traits may be less apparent as individuals motivated to take part in an activity pertaining to solving a civic problem are more likely to be angry or disturbed about the status quo. Therefore, we posit that individuals who are less agreeable are more motivated to use social media for civic engagement activities.

H8: Agreeableness is negatively associated with perceived usefulness of social media for civic engagement

Conscientious people possess an intrinsic motivation for accomplishment. They are more likely to try to use the tools available to improve the performance of the task at hand [25]. They are more able to follow directions and make use technology effectively than people who are non-conscientious [28]. We therefore posit that conscientious people are more likely to see the benefits of using social media to support their civic activities.

H9: Conscientiousness is positively associated with perceived usefulness of social media for civic engagement

We use the construct of emotional stability to measure the emotional status of the individual based on prior studies [25]. Individuals taking part in civic engagement activity and who wish to interact and work with others need to be able to allow others to observe their work and to be able to handle criticism from others. Hence, emotional stability

H10: Emotional stability is positively associated with perceived usefulness of social media for civic engagement

People who rank highly on openness are more likely to learn new things and find new ways to carry out tasks [26]. The use of social media presents the opportunity for individuals to try a new platform to accomplish a social objective. Therefore, we posit that individuals who rank highly on openness will also be more likely to use social media for their civic activities.

H11: Openness is positively associated with perceived usefulness of social media for civic engagement

3 Method

The above review of literature reveals that although a number of studies have studied the impact of social media on civic engagement, and likewise of personality on social media use, the mediation effect of TAM factors has not been studied in a comprehensive and integrated model. In the following sections we explain our research design and analysis of data.

3.1 Sample and Procedure

To examine the relationship between social media use and civic engagement and to examine the factors that influence social media use, an online survey was conducted among undergraduate and graduate students including Executive MBA and PhD students of a university in Bangalore, India between January 2016 and March 2016. All the students received the survey's URL through an email invitation and three reminders were sent subsequently. A total of 2954 survey links were sent and 298 responses were received out of which 282 usable responses were used for data analysis making the response rate 9.6%. Socio demographics included gender (female = 45%), age (range: 18 to 84),and educational qualification (undergraduate = 60.9%, graduate = 36.8%).

3.2 Measures

All the subjective scales employed in this study are extracted from prior literature. The perceived ease of use and perceived usefulness were measured based on earlier studies [29], which was employed in the TAM literature [30, 25] in the context of personality traits and technology use. The personality traits were measured using part of the 10-item personality inventory [24] that has been shown to have adequate levels of reliability, validity and external correlates [24].

Social media use is operationalized using the attitudinal scale developed by earlier studies [31]. The respondents' online and offline civic engagement and social capital was gauged using the scale developed by earlier studies [15, 6].

3.3 Preliminary Measurement Validation

The pilot study helped establish content and face validity. Our examination of the psychometric properties of the scales showed Cronbach's alpha > 0.7 confirming acceptable reliabilities.

3.3.1 Reliability and Validity

Table 1 shows that acceptable ranges for composite reliability, and average variance extracted (AVE).

Table 1. Reliability and Convergent Validity

Variable	Cronbach's α	Composite reliability	AVE
Perceived ease of use	0.7384	0.8477	0.6502
Perceived Usefulness	0.7552	0.8601	0.6726
Social media Use	0.8468	0.8909	0.6211
Social Capital	0.9003	0.9226	0.6659
Online Civic Engagement	0.8980	0.922	0.6641
Offline Civic Engagement	0.8725	0.9066	0.6622

The two important validity measures, convergent validity and discriminant validity can also be inferred from Table 2. The AVE of all constructs are larger than 0.5 as shown in Table 2 confirming convergent validity. Discriminant validity can be inferred as the indicators load higher on their measured construct than on other constructs; and the square root of the average variance extracted (AVE) is larger than its correlations with other constructs [32].

3.3.2 The Fornell-Larcker Criterion

Discriminant validity can also be assessed by the Fornell-Larcker criterion [33] which states that a construct has to share more variance with its corresponding indicators than with other constructs (Refer Table 2).

Table 2. Inter-construct correlations: The Fornell-Larker Criterion for Discriminant Validity

	AVE	PEOU	PU	SM_USE	SOC_CAP	CIV_ONL	CIV_OFF
Perceived ease of use	0.6502	**0.8063**					
Perceived usefulness	0.6726	0.4431	**0.8201**				
Social media use	0.6211	0.3695	0.6214	**0.7881**			
Social capital	0.6659	0.3669	0.6658	0.5915	**0.8160**		
Civic engagement online	0.6641	0.2254	0.2986	0.3700	0.4007	**0.8149**	
Civic engagement offline	0.6622	0.0646	0.2194	0.1565	0.2015	0.5942	**0.8138**

3.4 The Structural Model: Hypotheses Testing

Hypotheses are tested using the structural model. A 5 % significance level is used as a statistical decision criterion. The validated model with the structural path coefficients and their significance is illustrated in Figure 1. The hypotheses that are supported are shown in Table 3.

Table 3.Test of PLS Path with Bootstrap

Path	Mean for Path Coefficient	Standard deviation for path coefficients	T statistic	Hypothesis
EXT →PU	0.1087	0.665	1.6946 *	Supported
AGR→PU	-0.1401	0.0512	2.6826 **	Supported
OPN→PU	-0.0445	0.0611	0.6954	Not Supported
CON→PU	0.1277	0.0677	1.8225 *	Supported
EMS→PU	0.1281	0.0549	2.3836 **	Supported
PEOU→PU	0.4459	0.0527	8.3313 ***	Supported
PU→SM_USE	0.6269	0.0362	17.1876 ***	Supported
SM_USE →CIV_ONL	0.2086	0.066	3.1012 **	Supported
SM_USE→SOC_CAP	0.5948	0.0441	13.4065 ***	Supported
SOC_CAP→CIV_ONL	0.2796	0.0627	4.4581 **	Supported
CIV_ONL→CIV_OFF	0.5996	0.0496	11.9774 ***	Supported

*** denotes the significant path at 0.001; ** denotes the significant path at 0.01 and * denotes the significant path at 0.05

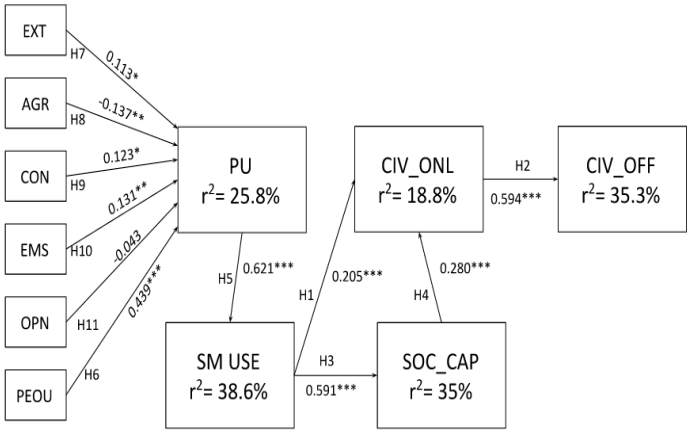

Fig. 1. The Validated Research Model

3.5 Additional Validity Tests

3.5.1 Effect Size

The PLS structural model can be assessed by f^2 that is obtained by (R^2 incl – R^2 excl)/ (1- R^2 incl) [34]. The f^2 values of 0.02, 0.15 and 0.35 denote small, medium and

large effects respectively [35]. The effect sizes of various independent variables are presented in Table 5.

Table 5. Effect size - Relevant indicators for the structural model

Path	R^2 included	R^2 excluded	T value	f^2
EXT →PU	0.258	0.25	1.6946	0.0107
AGR→PU		0.244	3.573	0.0188
OPN→PU		0.257	0.6954	0.0013
CON→PU		0.246	1.8225	0.0161
EMS→PU		0.244	2.3836	0.0188
PEOU→PU		0.074	8.3313	0.2479

3.5.2 Goodness of Fit

A GoF value of the structural model was obtained and found to be 0.3478 which exceeds the cut-off value of 0.25 for medium effect sizes of r squared [36].

3.5.3 The Stone-Geisser Test

The Stone-Geisser test [36] also called as the Q^2 indicator is also used to assess the predictive relevance of the structural model. Using the blind folding procedure, the cross-validated redundancy of Perceived Usefulness (0.1559), Social Media Use (0.2312), Online Civic Participation (0.1176), Offline Civic Participation (0.2209) and Social Capital (0.2205) are found and are greater than 0 signifying the predictive relevance of the model.

4 Results and Discussion

We empirically tested the effect of social media use on online civic engagement (H1) and social capital (H3); social capital on online civic engagement (H4) and also the effect of online civic engagement on offline civic engagement (H2) and found support for all the hypotheses. We also studied the effect of personality traits identified by the Big Five model on social media use with extraversion, agreeableness, conscientiousness, and openness, having a significant effect on perceived usefulness of social media while emotional stability had no significant effect on perceived usefulness. It is important to note that we found agreeableness to have a negative significant effect on social media use for civic participation as was hypothesized. The results affirm our belief that in the context of civic engagement, agreeableness may not be a personality trait that the users of social media possess as individuals motivated to take part in an activity pertaining to solving a civic problem are more likely to have angst or be disturbed about the status quo. Perceived ease of use had a significant impact on perceived usefulness of social media. Perceived usefulness had a significant positive impact on social media use (H5).

It is interesting to note that social media is able to generate civic interest. This is an important finding for governments, civic action groups and other parties interested in using social media as an enabling tool for democracy. This may be because of the participatory nature of the medium as compared to other traditional media which may encourage users of social media to exhibit civic engagement. Another reason as to why social media fosters civic engagement could be the trust factor [6]. Social media use can create reciprocity and trust among its members which in turn fosters civic engagement and social capital [6].

Prior research shows that a significant part of discussions related to civic matters do happen online particularly amongst young adults. This means that, the more the respondents were involved in online civic engagement, the more they participate in offline civic engagement. The results corroborate with earlier findings [37, 19].The fact that social media can be used as a platform for civic engagement is significant in the light of the fact that younger generations are more ardent users of social media and hence social media can be considered as potentially potent tool for civic activities in the future. The results help us understand how citizens use social media to spur civic action both online and offline [6, 23].

4.1 Conclusions

We believe that our study has advanced the scholarly debate on the transformative role played by social media. Our research has developed and empirically validated a new integrated theoretical framework that relates personality traits and technological factors on social media use and its outcome on civic engagement and social capital. We studied the role of social media in civic engagement using both, personality traits and technology perspectives, rather than just one of the approaches. The limitations of this study should be recognized. This study examined diverse age groups but the interpretation of the findings should be treated with caution as a majority of respondents belonged to the age group of 18 and 35. Our findings may be subjected to a self-selection bias, as younger adults having significant experience in using Internet technologies are more likely to respond to a web survey. Although this age group is best suited in the context of social media use, richer insights could be obtained with middle aged adults and senior citizens as well. While the model stresses the fact that personality traits do account for civic engagement, future research could include social traits such as life satisfaction, trust and personality factors such as loneliness. These types of traits can motivate people to express their emotions in social media. Future research can evaluate findings from information collected through qualitative and quantitative methods and also investigate moderator roles of socio-economic status, age group, education, income levels and network size. Despite these limitations, we believe our work strongly contributes to the growing field of social media research. The finding that online civic engagement positively influences offline civic engagement and also influences social capital is certainly promising for a country like India with weak infrastructure and civic apathy. Online civic engagement, if can spur offline actions that can become visible mass movements, engendering civic participation and engagement as the results demonstrate, can be a boon for developing economies in particular where citizens can work with the government to bring changes in the society.

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